Excersices

2.1 (Converting Fahrenheit to Celsius) Write a program that reads a Fahrenheit degree in double from an input dialog box, then converts it to Celsius and displays the result in a message dialog box. The formula for the conversion is as follows:

celsius = (5/9) * (fahrenheit - 32)

Hint

> In Java, `5 / 9` is 0, so you need to write `5.0 / 9` in the program to obtain the correct result.

2.2 (Computing the volume of a cylinder) Write a program that reads in the radius and length of a cylinder and computes its volume using the following formulas:

area = radius * radius * p

volume = area * length

2.3 (Converting feet into meters) Write a program that reads a number in feet, converts it to meters, and displays the result. One foot is `0.305` meters.

2.4 (Converting pounds into kilograms) Write a program that converts pounds into kilograms. The program prompts the user to enter a number in pounds, converts it to kilograms, and displays the result. One pound is `0.454` kilograms.

2.5* (Calculating tips) Write a program that reads the subtotal and the gratuity rate, and computes the gratuity and total. For example, if the user enters `10` for subtotal and `15%` for gratuity rate, the program displays `$1.5` as gratuity and `$11.5` as total.

[Page 64]

2.6** (Summing the digits in an integer) Write a program that reads an integer between `0` and `1000` and adds all the digits in the integer. For example, if an integer is `932`, the sum of all its digits is `14`.

Hint

> Use the `%` operator to extract digits, and use the `/` operator to remove the extracted digit. For instance, `932 % 10 = 2` and `932 / 10 = 93`

Java Exercises

تم الرفع بواسطة م. معن ابو عيسى

Q1

(Summing a series) Write a program to sum the following series:

$$\frac{1}{3} + \frac{3}{5} + \frac{5}{7} + \frac{7}{9} + \frac{9}{11} + \frac{11}{13} + \cdots + \frac{95}{97} + \frac{97}{99}$$

Q2

Finding the largest n such that $n^3 < 12000$) Use a while loop to find the largest integer n such that n is less than 12,000.

Q3

(Finding the factors of an integer) Write a program that reads an integer and displays all its smallest factors. For example, if the input integer is 120, the output should be as follows: 2, 2, 2, 3, 5.

Java method questions

Q1-

(Finding the smallest element) Write a method that finds the smallest element in an array of integers. Use {1, 2, 4, 5, 10, 100, 2, -22} to test the method

Q2-

Write a program that generates one hundred random integers between 0 and 9 and displays the count for each number. Hint: Use `(int)(Math.random() * 10)` to generate a random integer between 0 and 9. Use an array of ten integers, say `counts`, to store the counts for the number of 0's, 1's, ..., 9's.

Q3

(Computing deviation) Exercise 5.21 computes the standard deviation of numbers. This exercise uses a different but equivalent formula to compute the standard deviation of n numbers

$$mean = \frac{\sum_{i=1}^{n} x_i}{n} = \frac{x_1 + x_2 + \cdots + x_n}{n} \qquad deviation = \sqrt{\frac{\sum_{i=1}^{n}(x_i - mean)^2}{n-1}}$$

Eng.rami